

Vitamin D levels and liver disease: Type I vs type II diabetes

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In the American epidemic of diabetes and obesity, doctors diagnose an additional 3,700 American children with type-2 diabetes every year. In addition, the most common form of liver disease in children, potentially severe, non-alcoholic fatty liver disease, is also increasing. If your child has diabetes, his or her chances of getting non-alcoholic fatty liver disease increase significantly. What is not known is how the two are connected; nor is it known if the liver disease impairs the liver's ability to make 25(OH)D in these children, thus rendering them even more D deficient than sun avoidance would otherwise leave them.

In a brilliantly designed experiment, Dr. Benjamin Nwosu and colleagues from the University of Massachusetts Medical School compared young teenagers with the autoimmune disease, type I diabetes, with children suffering from the obesity-driven type II diabetes, measuring 25(OH)D, liver function, and diabetic severity in all the children.

[Nwosu BU, Stavre ZG, Maranda L, Cullen K, Lee MM. Hepatic dysfunction is associated with vitamin D deficiency and poor glycemic control in diabetes mellitus. J Pediatr Endocrinol Metab. 2012;25\(1-2\):181-6.](#)

They discovered that the type II kids had much lower vitamin D levels than the type I kids. In fact, almost three times as many type II children were very deficient (<15 ng/ml) compared to type I, and the type II kids were more likely to have liver disease. Furthermore, in type II diabetes, low 25(OH)D was linearly related to both an elevated liver function test (ALT) and with elevated hemoglobin A1C (a measure of long-term blood glucose). The higher the 25(OH)D, the better both those tests; neither test showed evidence of a threshold or upper limit cutoff for the effectiveness of vitamin D.

The authors conclude,

“Taken together, our data suggest that there is an association between liver dysfunction, vitamin D deficiency and impaired glycemic control in type 2 diabetes.”

That is, the liver of children with type II diabetes may not be able to make as much 25(OH)D as other kids because their liver is damaged, which in turn, may make both their diabetes and liver disease worse, a vicious circle.

Until several years ago, 25(OH)D itself was available as a prescription drug. That would solve this problem in these children if higher doses of vitamin D did not. Now, if a drug company

would just start making 25(OH)D again. It is a natural product; it occurs naturally in the human body so perhaps a vitamin company could start making it, like [Bio Tech Pharmacal](#)?